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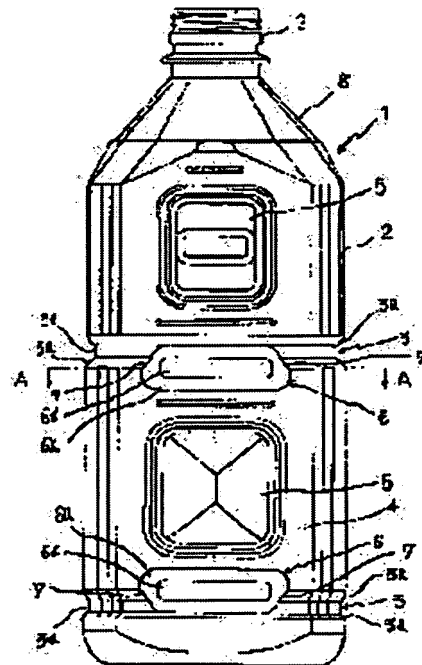
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## (54) SYNTHETIC RESIN BOTTLE

(57)Abstract:

PURPOSE: To obtain a bottle whose pressure-reduction-absorbing ability is high without decreasing its buckling strength, by allowing the entire flat wall provided with a panel wall to be depressed and deformed easily in an even, stable form.

CONSTITUTION: A flat wall 4 having a panel wall 5 is formed in the body 2, peripheral grooves 3 are provided above and below the flat wall 4, and in an area stretching from the flat wall 4 into the peripheral groove 3 a recessed part 6 is provided. Ridge lines 7 formed at the edges of both ends of the grooved part 6 nullify the ability of the peripheral groove 3 to prevent depression and deformation of the flat wall 4, and at the same time depression and deformation of the flat wall 4 is induced by the ridge lines 7. Thus, the flat wall 4 is easily depressed and deformed in an even, stable form.



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CLAIMS

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[Claim(s)]

[Claim 1] Drum section which carried out the cylinder-like-object-with-base configuration (2) Panel wall for reduced pressure absorption (5) Flat wall which it has (4) It forms. This flat wall (4) It is said drum section (2) at the gestalt formed successively on the vertical ends edge. Circumferential groove (3) Cave-in attachment is carried out. Said flat wall (4) Said circumferential groove which counters from a vertical ends center section (3) Crevice constituted from a taper wall (6a) which spreads in the method of outside, and a bottom wall (6b) by the part applied to a groove bottom wall (3b) (6) Bottle made of synthetic resin which \*\*\*\*\* and changes.

[Claim 2] Crevice (6) By supposing that it is oblong, it is this crevice (6). A taper wall (6a) and circumferential groove (3) Right-and-left both ridgelines formed between slot side attachment walls (3a) (7) Flat wall which counters (4) Bottle made of synthetic resin according to claim 1 located in side edge section nearness.

[Claim 3] drum section (2) the shape of a closed-end parallel square cartridge -- carrying out -- this drum section (2) the plate-like barrel wall part of the couple which countered at least -- flat wall (4) \*\* -- bottle made of synthetic resin according to claim 1 or 2 carried out.

[Claim 4] Drum section (2) It is the circumferential groove (3) of a high order to the center section of the height direction. While preparing, it is said drum section (2). It is a low-ranking circumferential groove (3) to the soffit section. Prepared claim 1 or bottle made of synthetic resin given in 2 or 3.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the drum section box-frame construction of the large-sized bottle by which biaxial drawing blow molding was carried out with the bottle made of synthetic resin, especially polyethylene terephthalate resin, etc.

[0002]

[Description of the Prior Art] It is excellent in content-proof physical properties or a mechanical strength with the outstanding property which a shaping synthetic-resin ingredient has while it is economical, since the large-sized bottle by which biaxial drawing blow molding was carried out with the bottle made of synthetic resin, especially polyethylene terephthalate resin (it is only hereafter described as PET), etc. can fabricate a comparatively large-sized thing to closing in, since an appearance is also good, is various as a liquid container and is used.

[0003] Thus, although the bottle made of synthetic resin by which biaxial drawing blow molding was carried out was what was excellent in the mechanical strength in spite of closing in, since the drum section which is the subject part of a bottle was closing in, it had the inconvenience which a part of drum section carries out cave-in deformation unjustly, and says the appearance of the bottle as goods that it makes it deteriorate remarkably with the reduced pressure generated in the bottle.

[0004] In order to cancel inconvenience called the reduced pressure deformation in this bottle made of synthetic resin by which biaxial drawing blow molding was carried out, For example, two or more \*\*\*\*\* of the deformation panel wall which is easy to carry out cave-in deformation at the barrel wall of a drum section are carried out as indicated by JP,57-199511,U. While absorbing the negative pressure generated in the bottle according to cave-in deformation of the fixed gestalt in this deformation panel wall, having it and making it unjust cave-in deformation not occur into other parts of a drum section, the various proposals of the bottle which heightened the self-configuration maintenance capacity of a drum section are made.

[0005]

[Problem(s) to be Solved by the Invention] However, if it is in the above-mentioned conventional technique Since the cave-in deformation for reduced pressure absorption of a deformation panel wall is produced with the gestalt which was certainly fixed, And so that the cave-in deformation produced in this deformation panel wall may affect other parts of a drum section and may not make other parts of this drum section produce unjust deformation Since it is necessary to prepare a part for the wall which functions as a timber between deformation panel walls that lowering of the buckling strength of the drum section by attaching the rib box-frame construction part which cannot deform into the perimeter of a deformation panel wall easily, and establishing a deformation panel wall should be prevented Area of a deformation panel wall could not be enlarged enough, but there was a problem which says that reduced pressure extent absorbable [ with cave-in deformation of a deformation panel wall ] for this reason is not enough.

[0006] If it is in this kind of bottle especially, in order to raise the buckling strength of a drum section, cave-in attachment of the circumferential groove is carried out, the height dimension of a deformation panel wall could not be made into sufficient value by this circumferential groove, but for this reason, the area of a deformation panel wall never became a large value, but the problem which says that reduced pressure absorption extent of a deformation panel wall is low was in the

center section of the drum section.

[0007] Moreover, absorbable reduced-pressure extent of a deformation panel wall is small considering extent of the cave-in deformation which generated since it is beforehand fabricated with the gestalt which caved in to the inner direction although it is small so that generating of the cave-in deformation by the reduced pressure generated in the bottle may tend to take place, it is low at it, and there was a problem which says that the applicable range is narrow in it. [ of reduced-pressure extent which can respond for this reason ]

[0008] Then, this invention aims at offering the large bottle of reduced pressure absorptance, without having been originated that the trouble in the above-mentioned conventional technique should be canceled, making into a technical technical problem enabling it to carry out cave-in deformation easily with the gestalt by which the whole flat wall part which established the deformation panel wall of a bottle drum section was fixed, and was stabilized, having and reducing buckling strength.

[0009]

[Means for Solving the Problem] The means of this invention which solves the above-mentioned technical technical problem The flat wall which has a panel wall for reduced pressure absorption is formed in the drum section which carried out the cylinder-like-object-with-base configuration of a bottle, It is in \*\*\*\*\* (ing) the crevice constituted from a taper wall which spreads in the method of outside, and a bottom wall by the part applied to the groove bottom wall of the circumferential groove which counters a drum section with the gestalt formed successively on the vertical ends edge of this flat wall from carrying out cave-in attachment of the circumferential groove, and the vertical ends center section of a flat wall.

[0010] By widening a crevice, it is effective to locate right-and-left both the ridgelines formed between the taper wall of this crevice and the slot side attachment wall of a circumferential groove in the side edge section nearness of the flat wall which counters.

[0011] It is good to make a drum section into the shape of a closed-end parallel square cartridge, and to use as a flat wall the plate-like barrel wall part of the couple which this drum section countered at least.

[0012] While preparing the circumferential groove of a high order in the center section of the height direction of a drum section, it is practical to prepare a low-ranking circumferential groove in the soffit section of a drum section.

[0013]

[Function] Since the crevice which consisted of a taper wall which spreads in the method of outside, and a bottom wall is \*\*\*\*\* (ed) by the part applied to the groove bottom wall of the circumferential groove which counters from the vertical ends center section of a flat wall, the direction of the depth of the crevice part located in a part for a flat wall, i.e., the height of a taper wall, becomes larger than the depth of the crevice part located in a circumferential groove part, i.e., the height of a taper wall, as a matter of course.

[0014] So, the both-sides part of the ridgeline formed between the taper walls of a crevice part and flat walls which are located in a part for a flat wall To the both-sides part of the ridgeline formed between the taper walls of a crevice part and the groove bottom walls of a circumferential groove which are located in a circumferential groove part, it will be located more in the side and the ridgeline of the couple which is formed between the taper wall of a crevice and the slot side attachment wall of a circumferential groove for this reason serves as the structure of having the cone angle which spread in the flat wall side.

[0015] Thus, since the ridgeline of the couple which spread at the flat wall side on the slot side attachment wall by the side of the flat wall of the circumferential groove which is the both-sides edge of a crevice, i.e., the projecting flection, is formed, if reduced pressure occurs in a bottle, apart from cave-in deformation of a deformation panel wall, the whole flat wall will carry out bow cave-in deformation of the ridgeline formed between the taper wall of a crevice, and a circumferential groove as a line by bending, and the generated reduced pressure will be absorbed.

[0016] While bow cave-in deformation of this whole flat wall bends and makes a line the ridgeline formed between the taper wall of a crevice, and the circumferential groove, a flat wall side is attained considering the successive formation section of the slot side attachment wall of the circumferential groove of an opposite hand, and a groove bottom wall, and the both-sides edge of a

flat wall as a bow deformation part.

[0017] As described above, bow cave-in deformation of the whole flat wall for reduced pressure absorption Since the ridgeline formed between the taper wall of a crevice and the circumferential groove and a flat wall side are drawn according to the bow deformation which the pinpointed part which is called both-sides edge of the successive formation section of the slot side attachment wall of the circumferential groove of an opposite hand and a groove bottom wall and a flat wall fixed and are produced Since the ridgeline as a bending line is formed in the circumferential groove part which had prevented powerfully generating of bow cave-in deformation of a flat wall in the conventional technique while that deformation gestalt is always fixed, bow cave-in deformation of this flat wall has been produced easily.

[0018] if the ridgeline formed between the taper wall of a crevice and the circumferential groove by widening a crevice is located in the side edge drawing nearness of a flat wall -- a flat wall, while almost being able to carry out bow cave-in deformation of the whole Since the ridgeline which is one part for carrying out bow cave-in deformation of the flat wall, and the both-sides edge of the flat wall which is one part which will be accepted in order to carry out bow cave-in deformation of the flat wall will be approached and located, bow cave-in deformation of a flat wall will be made easier to generate.

[0019]

[Example] Hereafter, one example of this invention is explained, referring to a drawing. Drawing 1 is the whole biaxial drawing blow molding bottle 1 front view made from PET containing 21. with which the drum section 2 carried out the shape of an abbreviation closed-end rectangle cartridge.

[0020] The regio oralis 9 of the shape of a short cylinder which \*\*\*\*\* (ed) the spiral rib and the flange to the peripheral face is set up through the shoulder 8 which made the multiple cylinder frustum configuration where it \*\*\*\*\* (ed) up the upper bed of a drum section 2.

[0021] Cave-in attachment of the circumferential groove 3 of a high order is carried out from the center of the height direction of a drum section 2 in the part used as mist or a high order, and cave-in attachment of the low-ranking circumferential groove 3 is carried out similarly at the soffit section of a drum section 2.

[0022] Both the circumferential grooves 3 consist of slot side-attachment-wall 3a of the couple which inclined in the direction which extends mutual spacing from the vertical ends edge of groove bottom wall 3b and this groove bottom wall 3b, and demonstrate from it the operation which raises the buckling strength of a drum section 2 as they die to the method of outside.

[0023] By the circumferential groove 3 of a high order, into each plate-like barrel wall part of the drum section 2 carried out 2 \*\*\*\*\*s up and down, i.e., eight plate-like barrel wall parts The panel wall 5 for reduced pressure absorption is formed in the center section, respectively (refer to drawing 1 and drawing 2 ), and since the plate-like barrel wall part pinched by vertical both the circumferential grooves 3 of the long side barrel wall part of a drum section 2 is used as the flat wall 4 (refer to drawing 1 ), the flat wall 4 will counter before and after a drum section 2, and will be established one pair.

[0024] The crevice 6 of an oblong high order is \*\*\*\*\* (ed) from the upper bed section center section of both the flat wall 4 by the part applied to groove bottom wall 3b of the circumferential groove 3 of a high order, and the crevice 6 of oblong low order is \*\*\*\*\* (ed) by the part similarly applied to groove bottom wall 3b of the low-ranking circumferential groove 3 from the soffit section center section of both the flat wall 4.

[0025] Each crevice 6 consists of taper wall 6a which spreads in the method of outside, and bottom wall 6b which forms successively at a way edge among this taper wall 6a, and forms the pars basilaris ossis occipitalis of a crevice 6. The taper wall 6a part located in flat wall 4 part Since the height is larger than the taper wall 6a part located in the groove bottom wall 3b part of a circumferential groove 3, the both-sides edge which is the successive formation section with the flat wall 4 It will be located in the side rather than the both-sides edge which is the successive formation section with groove bottom wall 3b of a taper wall 6a part located in the groove bottom wall 3b part of a circumferential groove 3. So, the ridgeline 7 of the couple formed as the successive formation section of taper wall 6a of a crevice 6 and slot side-attachment-wall 3a of a circumferential groove 3 becomes what inclined in the direction which spreads toward the flat wall 4 (refer to drawing 1 )

from a circumferential groove 3.

[0026] Since the crevice 6 is fabricated by width of face almost equal to the panel wall 5 in the case of the graphic display example, cave-in deformation of the flat wall 4 for reduced pressure absorption will deform the whole flat wall 4 part which formed this panel wall 5, and the cave-in deformation which absorbs reduced pressure of the panel wall 5 by this will be attained with the fixed gestalt, without being influenced by cave-in deformation of this flat wall 4.

[0027] In addition, while making the height width method of the crevice 6 of a high order into the value which a fingertip has allowances and can invade, by making the depth of this crevice 6 into the value in which the fingertip which invaded can be caught strongly, the amount of [ which formed the crevice 6 of this high order ] drum section 2 center section can be made to be able to function as the grasping section, and handling of a bottle 1 can be made good.

[0028]

[Effect of the Invention] Since this invention is the above-mentioned configuration, it does so the effectiveness taken below. Absorption of the reduced pressure generated in the bottle can be attained by the cave-in deformation of the flatness wall which prepared this panel wall in the part which is the whole mostly rather than is based only on the cave-in deformation of a panel wall prepared in the barrel wall of a drum section, and it can have it, and it can demonstrate very big reduced pressure absorptance.

[0029] The flat wall which carries out cave-in deformation for reduced pressure absorption according to an operation of the ridgeline formed by preparing a crevice It is the gestalt which was always fixed and was stabilized, and cave-in deformation can be carried out easily. For this reason, the cave-in deformation which can be made to attain with the gestalt which also fixed the cave-in deformation for reduced pressure absorption of a panel wall, and was stabilized, has, and is generated for reduced pressure absorption is attained with a good appearance gestalt, and does not spoil the appearance appearance of a bottle.

[0030] A crevice can offer the high bottle of reduced pressure absorptance, without not degrading the buckling strength reinforcement operation which a circumferential groove demonstrates, having it, and reducing buckling strength, since it is formed without spoiling the fundamental configuration of a circumferential groove.

[0031] Since a crevice and a circumferential groove are added, it only prepares and shaping of this crevice and a circumferential groove can newly be attained easily [ it is reasonable and ] to the conventional bottle, it can carry out easily, using the forming technique from the former as it is.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The whole front view showing one example of this invention.

[Drawing 2] The whole side elevation which omitted the pars basilaris ossis occipitalis of the example shown in drawing 1 .

[Drawing 3] The amplification vertical section side elevation of the crevice part of a high order in the example shown in drawing 1 .

[Drawing 4] The amplification vertical section front view of the circumferential groove part in the example shown in drawing 1 .

[Drawing 5] Plane-cross-section drawing which carried out the cutting view along with the A-A line among drawing 1 .

[Description of Notations]

1 ; Bottle

2 ; Drum Section

3 ; Circumferential Groove

3a; Slot side attachment wall

3b; Groove bottom wall

4 ; Flat Wall

5 ; Panel Wall

6 ; Crevice

6a; Taper wall

6b; Bottom wall

7 ; Ridgeline

8 ; Shoulder

9 ; Regio Oralis

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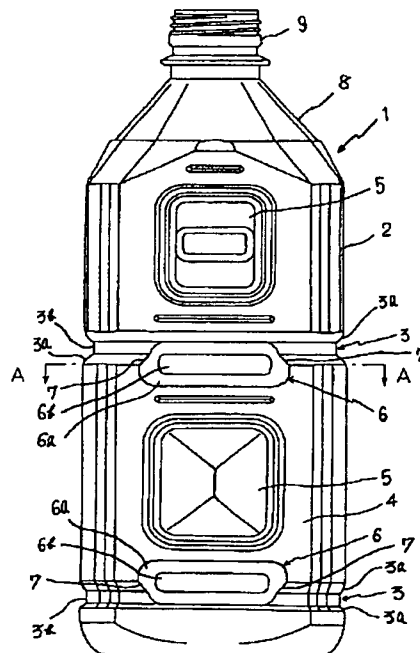
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(54)【発明の名称】 合成樹脂製壺体

(57)【要約】

【課題】 ハネル壁部を設けた平坦壁部分全体が一定したかつ安定した形態で容易に陥没変形できるようにすることを技術的課題とし、もって座屈強度を低下させることなく、減圧吸収能力の高い壺体を得ることにある。

【解決手段】 胴部2にパネル壁部5を有する平坦壁4を形成し、この平坦壁4の上下に周溝3を設け、平坦壁4と周溝3とにかけて凹部6を陥没設して構成し、凹部6の両側端縁に形成される稜線7により、周溝3の平坦壁4に対する陥没変形阻止能力を喪失させると共に、稜線7で平坦壁4の陥没変形を導くことにより、この平坦壁4を一定したかつ安定した形態で簡単に陥没変形させるようにした。



## 【特許請求の範囲】

【請求項1】 有底筒形状をした胴部(2)に、減圧吸収のためのパネル壁部(5)を有する平坦壁(4)を形成し、該平坦壁(4)の上下両端縁に連設する形態で前記胴部(2)に周溝(3)を陥没周設し、前記平坦壁(4)の上下両端中央部から対向する前記周溝(3)の溝底壁(3b)にかけての部分に、外方に拡がるテーパ壁(6a)と底壁(6b)とから構成された凹部(6)を陥没設して成る合成樹脂製壘体。

【請求項2】 凹部(6)を横長とすることによって、該凹部(6)のテーパ壁(6a)と周溝(3)の溝側壁(3a)との間に形成される左右両稜線(7)を、対向する平坦壁(4)の側端部間近に位置させた請求項1に記載の合成樹脂製壘体。

【請求項3】 胴部(2)を有底平行四角形筒形状とし、該胴部(2)の少なくとも対向した一対の平板状筒壁部分を平坦壁(4)とした請求項1または2に記載の合成樹脂製壘体。

【請求項4】 胴部(2)の高さ方向の中央部に上位の周溝(3)を設けると共に、前記胴部(2)の下端部に下位の周溝(3)を設けた請求項1または2または3に記載の合成樹脂製壘体。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は、合成樹脂製壘体、特にポリエチレンテレフタレート樹脂等により2軸延伸ブロー成形された大型壘体の胴部壁構造に関するものである。

## 【0002】

【従来の技術】合成樹脂製壘体、特にポリエチレンテレフタレート樹脂(以下、単にPETと記す)等により2軸延伸ブロー成形された大型壘体は、成形合成樹脂材料の持つ優れた特性により、比較的大型のものを肉薄に成形できるので、経済的であると共に、耐内容物性とか機械的強度に優れ、外観も良いので、液体容器として多方面で利用されている。

【0003】このように、2軸延伸ブロー成形された合成樹脂製壘体は、肉薄にも関わらず機械的強度の優れたものなのであるが、壘体の主体部分である胴部が肉薄であるので、壘体内に発生した減圧により、胴部の一部が不正に陥没変形し、商品としての壘体の外観を著しく劣化させると云う不都合があった。

【0004】この2軸延伸ブロー成形された合成樹脂製壘体における減圧変形という不都合を解消するため、例えば実開昭57-199511号公報に開示されているように、胴部の筒壁に陥没変形し易い変形パネル壁を複数陥没設して、壘体内に発生した負圧をこの変形パネル壁における一定した形態の陥没変形により吸収し、もって胴部の他の部分に不正な陥没変形が発生しないようにすると共に、胴部の自己形状保持能力を高めるようにし

た壘体が各種提案されている。

## 【0005】

【発明が解決しようとする課題】しかしながら、上記した従来技術にあっては、変形パネル壁の減圧吸収のための陥没変形を確実に一定した形態で生じさせるため、およびこの変形パネル壁に生じた陥没変形が胴部の他の部分に影響を与え、この胴部の他の部分に不正変形を生じさせることがないように、変形パネル壁の周囲に変形し難いリブ壁構造部分を周設する必要がある、また変形パネル壁を設けることによる胴部の座屈強度の低下を防止すべく、変形パネル壁間に柱材として機能する壁部分を設ける必要がある、変形パネル壁の面積を十分に大きくすることができず、このため変形パネル壁の陥没変形により吸収できる減圧程度が充分ではないと云う問題があった。

【0006】特に、この種の壘体にあっては、胴部の座屈強度を高めるために、胴部の中央部に周溝を陥没周設しており、この周溝により変形パネル壁の高さ寸法を充分な値とすることができず、このため変形パネル壁の面積は決して大きい値とはならず、変形パネル壁の減圧吸収程度が低いと云う問題があった。

【0007】また、変形パネル壁は、壘体内に発生した減圧による陥没変形の発生が起り易いように、予めわずかではあるが内方に陥没した形態で成形されているため、発生した陥没変形の程度の割には、吸収できる減圧程度が小さく、このため対応できる減圧程度が低く、適用できる範囲が狭いと云う問題があった。

【0008】そこで、本発明は、上記した従来技術における問題点を解消すべく創案されたもので、壘体胴部の変形パネル壁を設けた平坦壁部分全体が一定したかつ安定した形態で容易に陥没変形することができるようにすることを技術的課題とし、もって座屈強度を低下させることなしに、減圧吸収能力の大きい壘体を提供することを目的とする。

## 【0009】

【課題を解決するための手段】上記した技術的課題を解決する本発明の手段は、壘体の有底筒形状をした胴部に、減圧吸収のためのパネル壁部を有する平坦壁を形成すること、この平坦壁の上下両端縁に連設する形態で胴部に周溝を陥没周設すること、平坦壁の上下両端中央部から対向する周溝の溝底壁にかけての部分に、外方に拡がるテーパ壁と底壁とから構成された凹部を陥没設すること、にある。

【0010】凹部を横長とすることによって、この凹部のテーパ壁と周溝の溝側壁との間に形成される左右両稜線を、対向する平坦壁の側端部間近に位置させるのが有効である。

【0011】胴部を有底平行四角形筒形状とし、この胴部の少なくとも対向した一対の平板状筒壁部分を平坦壁とするのが良い。

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【0012】胴部の高さ方向の中央部に上位の周溝を設けると共に、胴部の下端部に下位の周溝を設けるのが実用的である。

【0013】

【作用】外方に拡がるテーパ壁と底壁とから構成された凹部は、平坦壁の上下両端中央部から対向する周溝の溝底壁にかけての部分に陥没設されているので、当然のこととして、平坦壁部分に位置する凹部部分の深さ、すなわちテーパ壁の高さの方が、周溝部分に位置する凹部部分の深さ、すなわちテーパ壁の高さよりも大きくなる。

【0014】それゆえ、平坦壁部分に位置する凹部部分のテーパ壁と平坦壁との間に形成される稜線の両側部分は、周溝部分に位置する凹部部分のテーパ壁と周溝の溝底壁との間に形成される稜線の両側部分に対して、より側方に位置することになり、このため凹部のテーパ壁と周溝の溝側壁との間に形成される一対の稜線は、平坦壁側に拡がったテーパ角度を有する構造となる。

【0015】このように、凹部の両側端縁である周溝の平坦壁側の溝側壁に、平坦壁側に拡がった一対の稜線、すなわち突出した屈曲部が形成されるので、壘体内に減圧が発生すると、変形パネル壁部の陥没変形とは別に、凹部のテーパ壁と周溝との間に形成される稜線を折れ曲がり線として平坦壁全体が湾曲陥没変形して、発生した減圧を吸収する。

【0016】この平坦壁全体の湾曲陥没変形は、凹部のテーパ壁と周溝との間に形成された稜線を折れ曲がり線とすると共に、平坦壁側とは反対側の周溝の溝側壁と溝底壁との連設部、および平坦壁の両側端部を湾曲変形箇所として達成される。

【0017】上記したように、減圧吸収のための平坦壁全体の湾曲陥没変形は、凹部のテーパ壁と周溝との間に形成された稜線と、平坦壁側とは反対側の周溝の溝側壁と溝底壁との連設部と、そして平坦壁の両側端部と云う特定された箇所の一定した湾曲変形により導かれて生じるものであるので、その変形形態は常に一定していると共に、従来技術において、平坦壁の湾曲陥没変形の発生を強力に阻止していた周溝部分に、折れ曲がり線としての稜線が形成されているので、この平坦壁の湾曲陥没変形は容易に生じることのできるものとなっている。

【0018】凹部を横長とすることにより、凹部のテーパ壁と周溝との間に形成された稜線を、平坦壁の側端間近に位置させると、平坦壁の殆ど全体を湾曲陥没変形させることができると共に、平坦壁を湾曲陥没変形させるための一つの箇所である稜線と、平坦壁を湾曲陥没変形させるためのもう一つの箇所である平坦壁の両側端部とが接近して位置することになるので、平坦壁の湾曲陥没変形をより発生し易くすることになる。

【0019】

【実施例】以下、本発明の一実施例を図面を参照しながら説明する。図1は、胴部2が略有底長方形筒形状をし

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た、2リットル入りのPET製2軸延伸ブロー成形壘体1の全体正面図である。

【0020】胴部2の上端には、上方に縮寸した多角筒錐台形状をした肩部8を介して、外面に螺条とフランジとを突周設した短円筒状の口部9を立設している。

【0021】胴部2の高さ方向の中央よりもやや上位となる箇所には、上位の周溝3が陥没周設されており、また胴部2の下端部には、下位の周溝3が同様に陥没周設されている。

10 【0022】両周溝3は、溝底壁3bと、この溝底壁3bの上下両端縁から、外方にゆくに従って相互間隔を広げる方向に傾斜した一対の溝側壁3aとから構成され、胴部2の座屈強度を高める作用を発揮する。

【0023】上位の周溝3により、上下に2分割された胴部2の各平板状筒壁部分、すなわち八つの平板状筒壁部分には、それぞれ中央部に減圧吸収のためのパネル壁部5が形成(図1および図2参照)されており、胴部2の長手辺筒壁部分の上下両周溝3に挟まれた平板状筒壁部分を平坦壁4(図1参照)としているので、平坦壁4は胴部2の前後に対向して一対設けられることになる。

20 【0024】両平坦壁4の上端部中央部から上位の周溝3の溝底壁3bにかけての部分に、横長な上位の凹部6が陥没設されており、同様に両平坦壁4の下端部中央部から下位の周溝3の溝底壁3bにかけての部分に、横長な下位の凹部6が陥没設されている。

【0025】各凹部6は、外方に拡がるテーパ壁6aと、このテーパ壁6aの内方端に連設して凹部6の底部を形成する底壁6bとから構成されており、平坦壁4部分に位置するテーパ壁6a部分は、周溝3の溝底壁3b部分に位置するテーパ壁6a部分よりも、その高さが大きいので、その平坦壁4との連設部である両側端縁は、周溝3の溝底壁3b部分に位置するテーパ壁6a部分の溝底壁3bとの連設部である両側端縁よりも側方に位置することになり、それゆえ凹部6のテーパ壁6aと周溝3の溝側壁3aとの連設部として形成される一対の稜線7は、周溝3から平坦壁4に向かって拡がる方向に傾斜(図1参照)したものとなる。

【0026】図示実施例の場合、凹部6はパネル壁部5とはほぼ等しい幅で成形されているので、減圧吸収のための平坦壁4の陥没変形は、このパネル壁部5を設けた平坦壁4部分全体が変形することになり、これによりパネル壁部5の減圧を吸収する陥没変形は、この平坦壁4の陥没変形に影響されることなく、一定した形態で達成されることになる。

【0027】なお、上位の凹部6の高さ幅寸法を、指先が余裕を持って侵入できる値とすると共に、この凹部6の深さを、侵入した指先が強く引っ掛かることのできる値とすることにより、この上位の凹部6を設けた胴部2中央部分を把持部として機能させることができ、壘体1の取扱いを良好なものとすることができる。

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【0028】

【発明の効果】本発明は、上記した構成であるので、以下に示す効果を奏する。壺体内に発生した減圧の吸収は、胴部の筒壁に設けられたパネル壁部の陥没変形だけによるのではなく、このパネル壁部を一部に設けた平坦壁のほぼ全体の陥没変形によっても達成され、もって極めて大きな減圧吸収能力を発揮することができる。

【0029】減圧吸収のために陥没変形する平坦壁は、凹部を設けることにより形成される稜線の作用により、常に一定したかつ安定した形態でそして簡単に陥没変形することができ、このためパネル壁部の減圧吸収のための陥没変形も一定したかつ安定した形態で達成させることができ、もって減圧吸収のために発生する陥没変形が良好な外観形態で達成され、壺体の外観体裁を損なうことがない。

【0030】凹部は、周溝の基本的な構成を損なうことなく形成されているので、周溝が発揮する座屈強度補強作用を劣化させることがなく、もって座屈強度を低下させることなく、減圧吸収能力の高い壺体を提供することができる。

【0031】従来の壺体に対して、新たに凹部と周溝を追加して設けるだけであり、この凹部および周溝の成形は、無理なく簡単に達成できるので、従来からの成形技術をそのまま利用して簡単に実施することができる。 \*

\*【図面の簡単な説明】

【図1】本発明の一実施例を示す、全体正面図。

【図2】図1に示した実施例の底部を省略した全体側面図。

【図3】図1に示した実施例における、上位の凹部部分の拡大縦断側面図。

【図4】図1に示した実施例における、周溝部分の拡大縦断正面図。

【図5】図1中、A-A線に沿って切断矢視した平断面図。

【符号の説明】

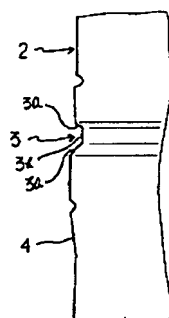
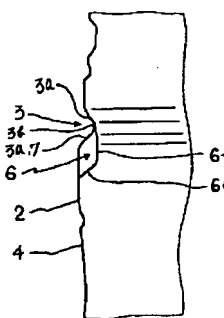
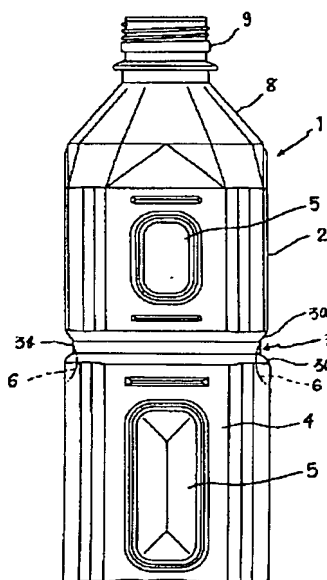
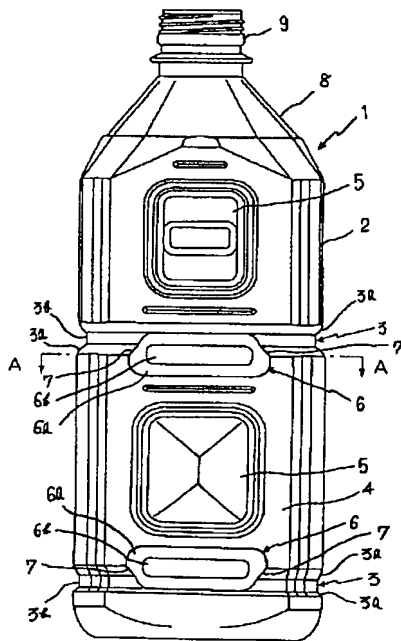
- 1 ; 壺体
- 2 ; 胴部
- 3 ; 周溝
- 3 a ; 溝側壁
- 3 b ; 溝底壁
- 4 ; 平坦壁
- 5 ; パネル壁部
- 6 ; 凹部
- 6 a ; テーパ壁
- 6 b ; 底壁
- 7 ; 稜線
- 8 ; 肩部
- 9 ; 口部

【図1】

【図2】

【図3】

【図4】



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- 1 ; 煙体 2 ; 胴部 3 ; 周溝 3 a ; 溝側壁  
3 b ; 溝底壁 4 ; 平坦壁 5 ; パネル壁部  
6 ; 凹部 6 a ; テーパー壁 6 b ; 底壁  
7 ; 稜線 8 ; 肩部 9 ; 口部